

A new species of *Sinularia* (Coelenterata: Octocorallia) from Western Australia

Philip Alderslade* and Jody Baxter*

Abstract

A new species of soft coral *Sinularia platysma* (family Alcyoniidae) is described from material collected off Rottnest Island, Western Australia. The unusual encrusting colonies have no lobes and their dish-like aspect easily distinguishes them from previously described species.

Introduction

In 1980 Verseveldt published a revision of the genus *Sinularia* in which he recorded 93 species as being valid. Verseveldt and Tursch (1979), Chupu (1982) and Verseveldt and Benayahu (1983) increased this to 113 species. An examination of all the relevant illustrations easily demonstrates that the diversity of colony morphology within this genus is greater than that of any other soft coral species group. It encompasses such diverse forms as the long, lax, tentacle-like processes of *S. flexibilis* (Quoy and Gaimard), the minute lobules of *S. variabilis* Tixier-Durivault, the funnel-like forms of *S. dura* (Pratt), the hillocks of *S. densa* (Whitelegge), the branches of *S. arborea* Verseveldt and the meandering ridges of *S. muralis* May. Yet the essential nature of the spiculation is more or less constant throughout the group and there is little evidence to suggest the genus should be divided.

The addition of *S. platysma* sp. nov., the subject of this paper, increases the remarkable diversity of the genus even further by adding to it a colonial form completely devoid of natural lobes and presenting an upper aspect reminiscent of a shallow dish, or saucer, of irregular outline.

The new species has many club-shaped sclerites without a central wart and longer than 0.12 mm and therefore falls into Group IV of Verseveldt's 1980 categorisation.

The following abbreviations are used: WAM, Western Australian Museum, Perth; NTM, Northern Territory Museum of Arts and Sciences, Darwin.

* Division of Natural Sciences, Northern Territory Museum, GPO Box 4646, Darwin, Australia 5794.

Systematics

Sinularia platysma sp. nov.

Figures 1-8

Holotype

NTM C-1049; collected by K. Harada from Thomson Bay, Rottnest Island, Western Australia, 31°59.7'S, 115°33'E, 10 April 1979, depth 10 m.

Paratypes

WAM 230-86, WAM 231-86, NTM C-1190, NTM C-1193; collected by P. Alderslade from Thomson Bay, Rottnest Island, Western Australia, 31°59.5'S, 115°33'E, 17 March 1980, depth 10 m.

Diagnosis

A small irregularly disc-shaped, encrusting, *Sinularia* the upper aspect of which is flat or slightly dished and devoid of naturally occurring lobes. The margin of the disc is entire and may be raised like the rim of a pie dish. Sclerites of the disc surface: simple clubs and branched forms 0.07 to 0.22 mm long and spindles to 0.35 mm. Sclerites of the basal surface: complexly warted capstans and clubs 0.09 to 0.23 mm long and a few spindles up to 0.40 mm long with high warts. Sclerites of the interior: plump warty spindles up to 5.1 x 1.32 mm and, particularly in the basal zone, a few spindles up to 0.45 mm with high warts. Polyps well armed with crown and points. (For comparisons with other *Sinularia* species see Remarks.)

Description

The spirit-preserved holotype (Figures 6 and 7A) is in two pieces. The pieces combined make up about half of the original encrusting colony and together measure 180 x 115 mm. The colony disc, which is approximately 30 mm thick, is flat, completely devoid of lobes and has the edge raised like the rim of a dish. This erect rim is between 20 and 30 mm high. Where the rim merges into the disc it is 12 to 15 mm thick. It then slowly tapers, being about 8 mm thick halfway up and 2 to 3 mm thick just below its rounded edge.

Polyps occur all over the surface of the disc and the inner surface of the rim. On the flat disc most of the polyps are partially extended and the surface is raised into low calicular mounds. On the inner surface of the rim there are zones of extended polyps, zones of low calicular mounds and zones where the locations of the polyps are difficult to detect. On the disc the polyps are quite evenly spaced. Measured from their centres most autozooids are 1.9 to 2.4 mm apart. On the rim the polyps are noticeably closer, with distances between polyps of 0.9 to 1.2 mm being more common. Some of the extended polyps are up to 1.2 mm long with anthocodia 0.8 to 1.1 mm across.

The polyps are well armed with numerous spindles and sticks. The crown consists of up to about six rows. Immediately above this, small numbers of sclerites are arranged loosely *en chevron* at the base of each tentacle, each group converging distally to a larger group arranged longitudinally (Figure 1A). The

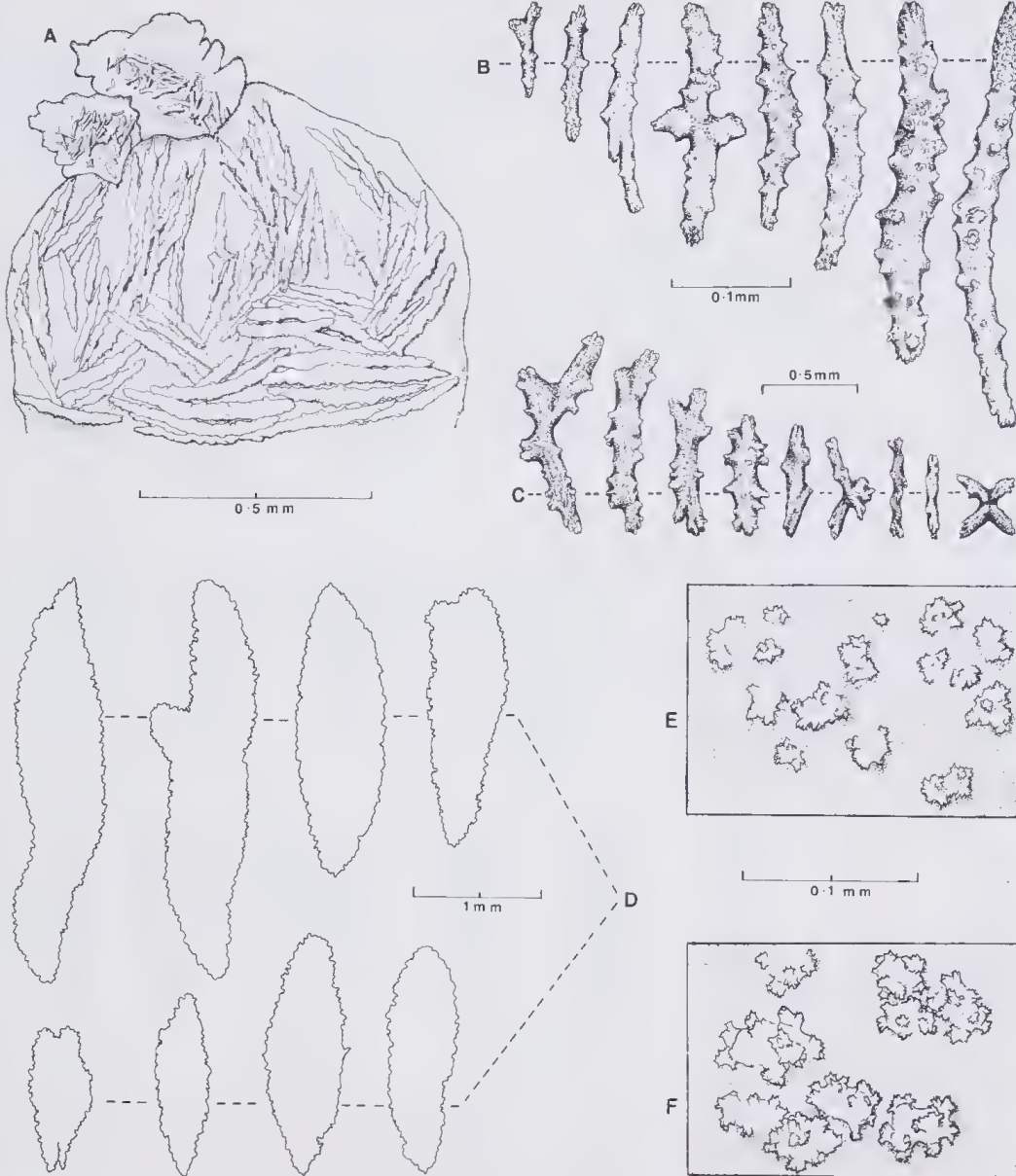


Figure 1 *Sinularia platysma* sp. nov. holotype, NTM C-1049; A, anthocodial armature; B, crown and points sclerites; C, tentacular sclerites; D, interior sclerites; E, warting of sclerites from the interior of the upper part of the colony; F, warting of sclerites from the interior of the basal part of the colony.

anthocodial sclerites (Figure 1B) are mostly 0.08 to 0.36 mm in length and bear conical prominences. The tentacles contain numerous small, slightly flattened, rods and irregularly shaped sclerites, mostly 0.04 to 0.11 mm in length (Figure 1C).

The sclerites in the surface of the disc have extremely varied shapes. Clubs, irregularly branched forms and spindles occur here. The clubs (Figure 2) are from 0.07 to 0.22 mm in length. The heads and handles are mostly ornamented with simple pointed processes but there appears to be little pattern to their construction. The irregularly branched sclerites, and the intermediate shapes between these forms and the clubs, are 0.07 to 0.18 mm in length (Figure 3). The spindles,

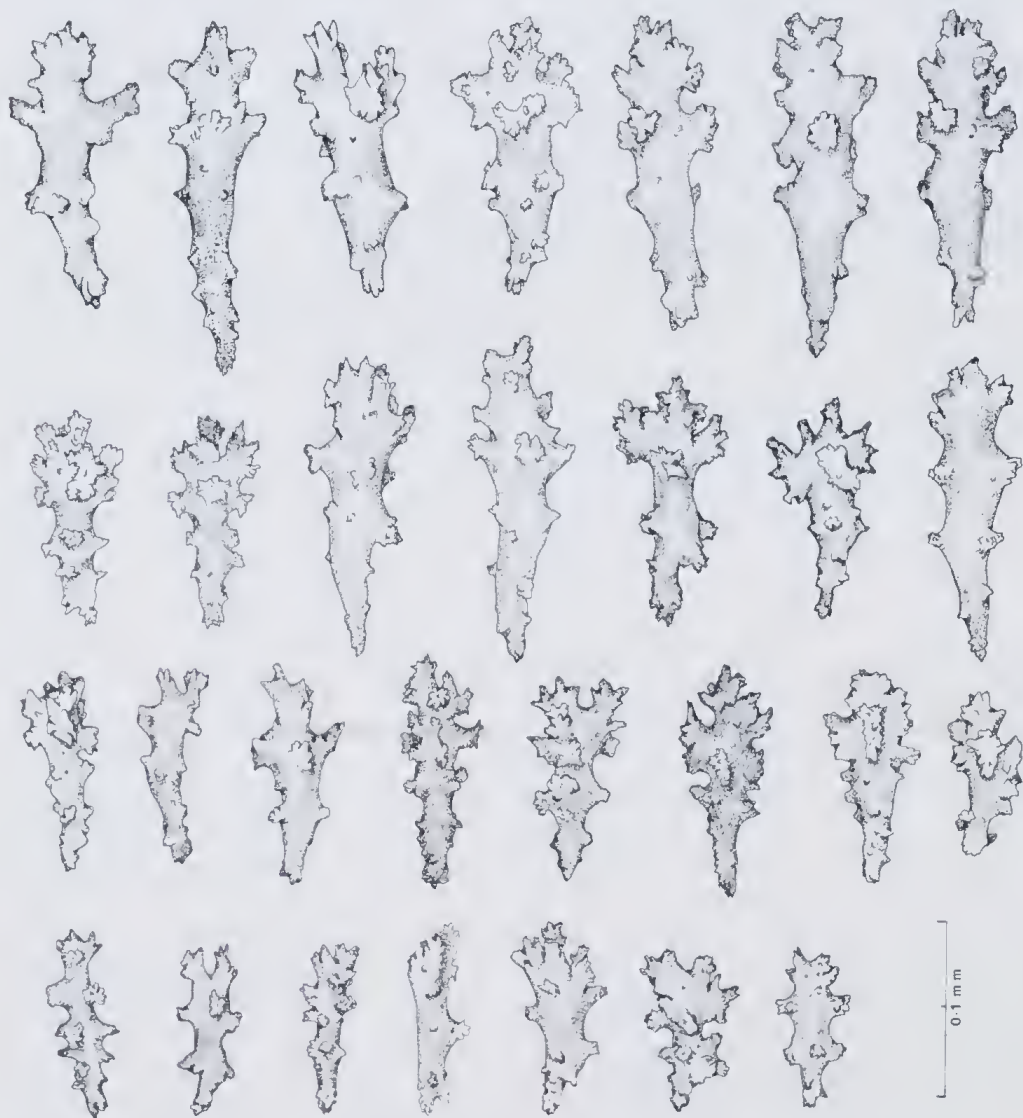


Figure 2 *Sinularia platysma* sp. nov. holotype; sclerites from the surface of the disc.

armed for the most part with simple cone-like prominences, grade into the large interior spindles. The majority of spindles (Figure 3) are less than 0.35 mm long and anything in the sample over about 0.48 mm is heavily warted and probably referable to the interior disc zone.

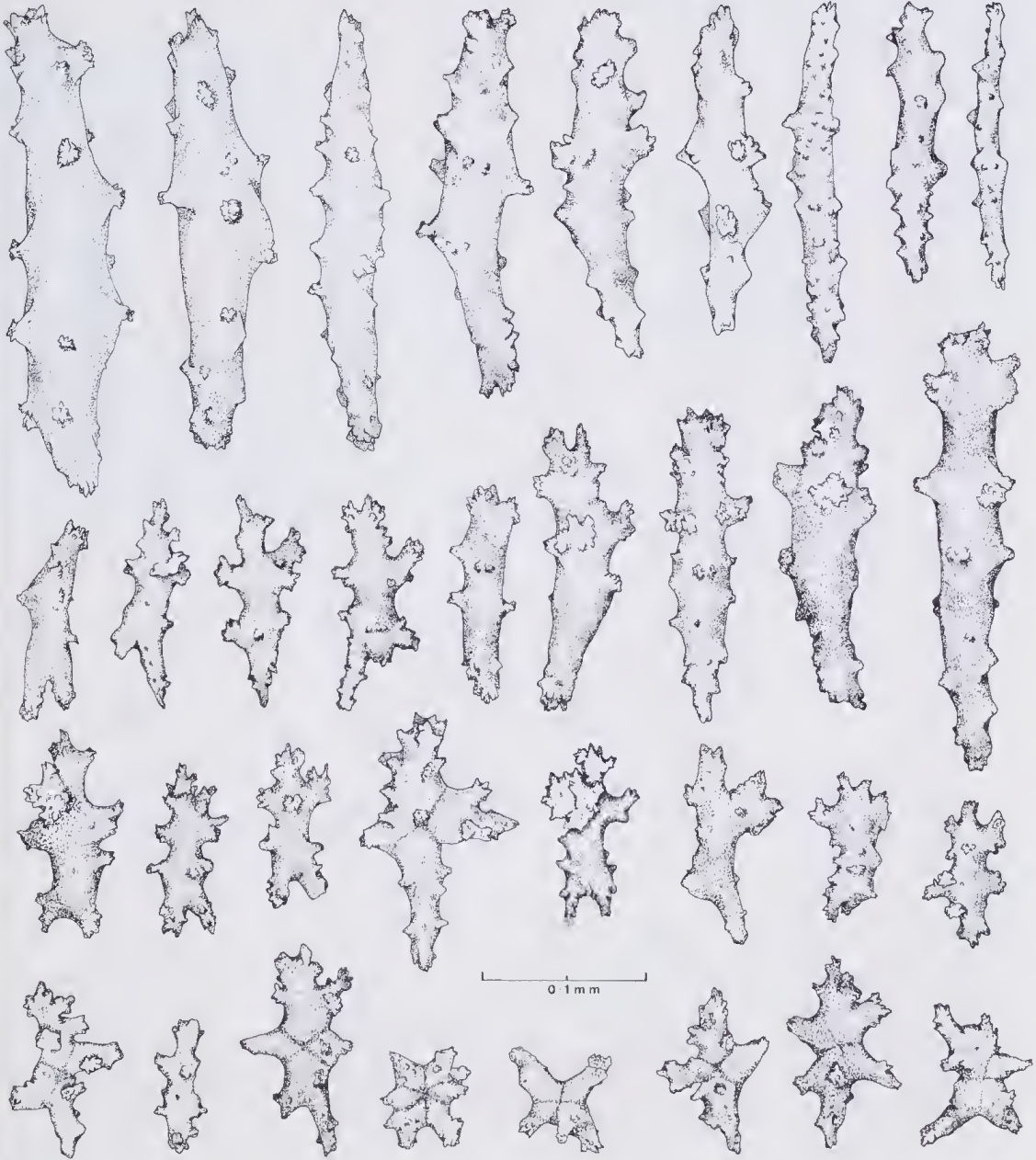


Figure 3 *Sinularia platysma* sp. nov. holotype; sclerites from the surface of the disc.

The sclerites of the surface of the basal part of the colony are quite unlike those of the upper surface of the disc. The majority are eight radiate capstans, 0.09 to 0.23 mm in length, with complex warring, while others are quite irregularly warted and a few approach tuberculate spheroids (Figure 4). A number of the capstans have one whorl of warts reduced producing club-like sclerites 0.15 to 0.23 mm in length, as represented in Figure 5. Also in Figure 5 are several spindles with high warts. A few sclerites of this form may be found in the basal surface samples, but they are more common in the interior of the base where they occur up to 0.45 mm in length distributed amongst the larger warty spindles typical of this genus. These larger coenenchymal sclerites (Figure 1D) are present throughout the interior of the colony. They are packed together in the canal walls, perpendicular to the plane of the colony disc, and there is little distinction

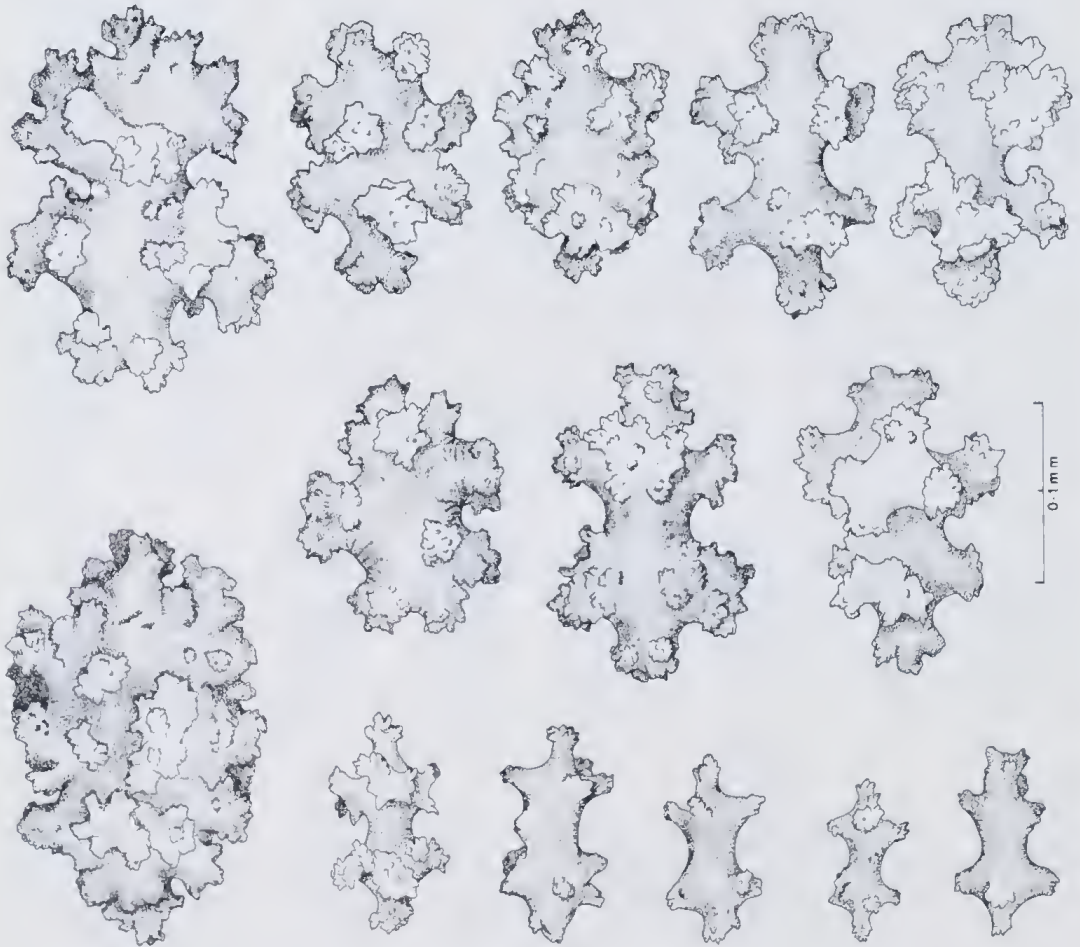


Figure 4 *Sinularia platysma* sp. nov. holotype; sclerites from the surface of the base.

between those of the upper and lower layers. Many of the spindles are noticeably plump. Some have bifurcated ends and others have developed short branches. Those in Figure 1D are up to 3.2×0.7 mm but others to 5.1×1.32 mm have been noted. Some of those in the upper regions of the disc have finer warting (Figure 1E) than those from the base (Figure 1F).

In life the colony was blue-grey. In spirit the colony disc is sand coloured with some of the anthocodia being dark brown. The rim is dark brown with sand coloured patches.

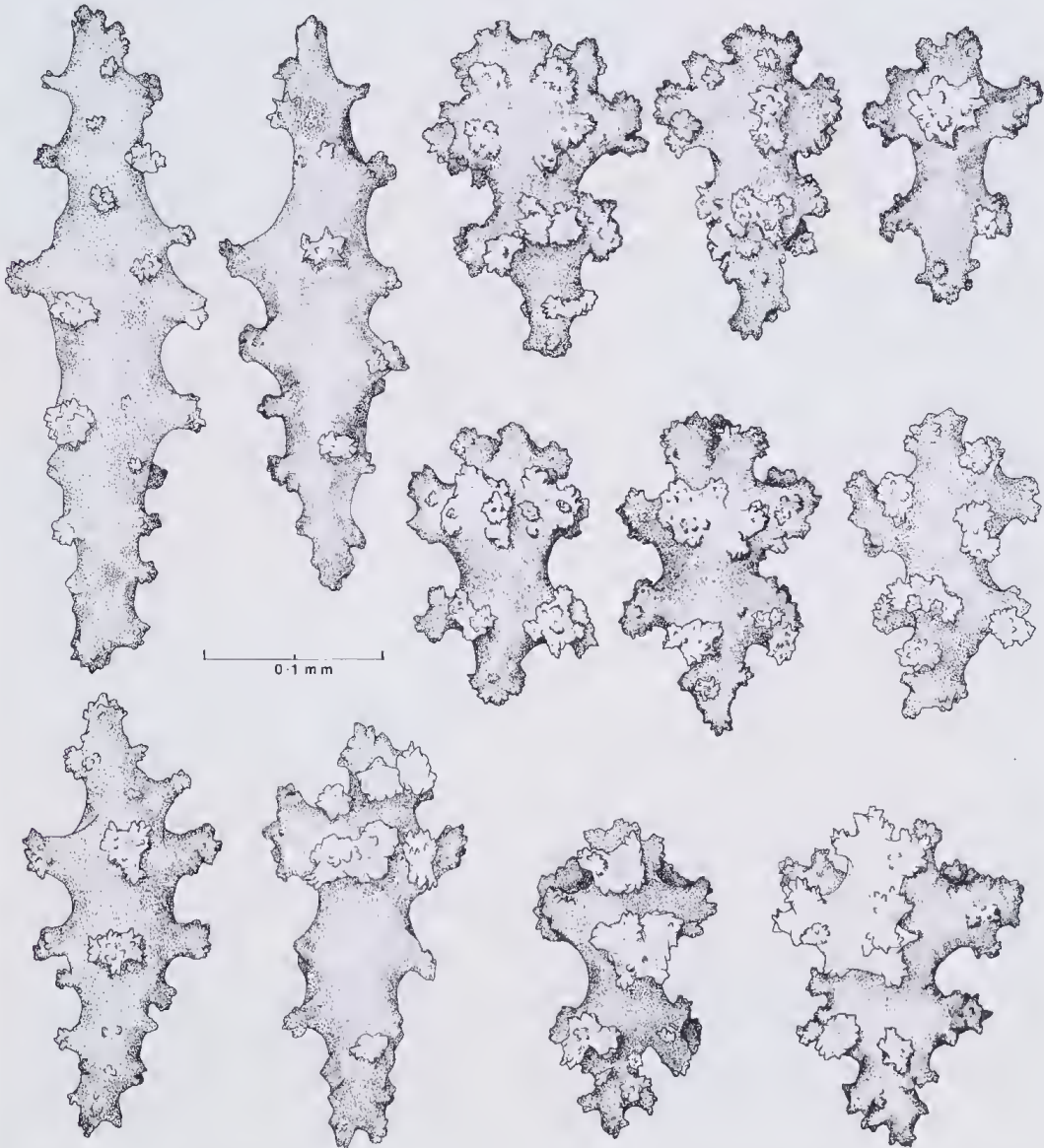


Figure 5 *Sinularia platysma* sp. nov. holotype; sclerites from the surface of the base.

Etymology

From the Greek *Platysma*: flat piece, plate.

Remarks

All specimens of the type series were collected from Rottneest Island and the paratypes (Figures 7B, C and 8A, B) agree in virtually all respects with the major characters of the holotype. There is, however, some variability. Colony WAM 231-86, which is by far the smallest of the series, has a much lower percentage of branched sclerites in the surface of the disc, and of capstans in the surface of the base.

Specimens. NTM C-1193 and WAM 230-86 are whole colonies and opposing edges have tended to curl in towards the centre of the disc during preservation. These colonies do not show the kind of erect rim so prominent in the holotype. If it was possible to uncurl these specimens their upper surface would resemble the concavity of an irregularly shaped saucer. Their appearance may be due to the strong contraction the colonies have undergone, however, this would not account for the similarly shallow concavity of the non-curved specimen WAM 231-86.

Specimen NTM C-1190 is actually two pieces and, like the holotype, is only part of a bigger colony. The larger of the two pieces does have an erect rim. The smaller piece has a cleft ridge on one side which may have resulted from a process of asexual division beginning in this area. Each of the pieces has a large cone-like hillock rising from the disc surface; that on the larger piece rises 35 mm with a base 70 mm across. These mounds appear to have been induced in the animal by the intrusion of an organism up through the base of the colony. Examination of one of the hillocks revealed a hollow central tube-like cavity, about 7 mm across, lined with numerous opaque white coenocymal spindles. The causative organism was not located. A similar but much smaller hillock is present on specimen WAM 230-86.

The paratypes are all brown in colour, WAM 230-86 and WAM 231-86 being paler than the other colonies, and all have their polyps completely retracted.

Although the thickness of the disc in specimen NTM C-1190 is approximately the same as that of the holotype, in the other three specimens it is only 10 to 15 mm thick.

There are a number of species of *Sinularia* where the centre of the upper face of the capitulum is more or less free of lobes and comparisons should be made with these species. Colonies of *S. dura* (Pratt, 1903) tend to be vase-shaped (see Verseveldt 1974, pl. 2, figs 1b and 1c), however, the inside surface of the concavity is covered with low mounds and ridges, the rim is quite uneven and the colonies are not low and encrusting. Young colonies of *S. fungoides* Thomson and Henderson, 1906, are similar to *S. dura* (see Verseveldt 1980, pl. 22, fig. 4). The colony form of *S. lamellata* Verseveldt and Tursch, 1979 is easily distinguishable and no comment is necessary. *S. facile* Tixier-Durivault, 1970, is somewhat



Figure 6 *Sinularia platysma* sp. nov.; holotype NTM C-1049. Scale line 2 cm.

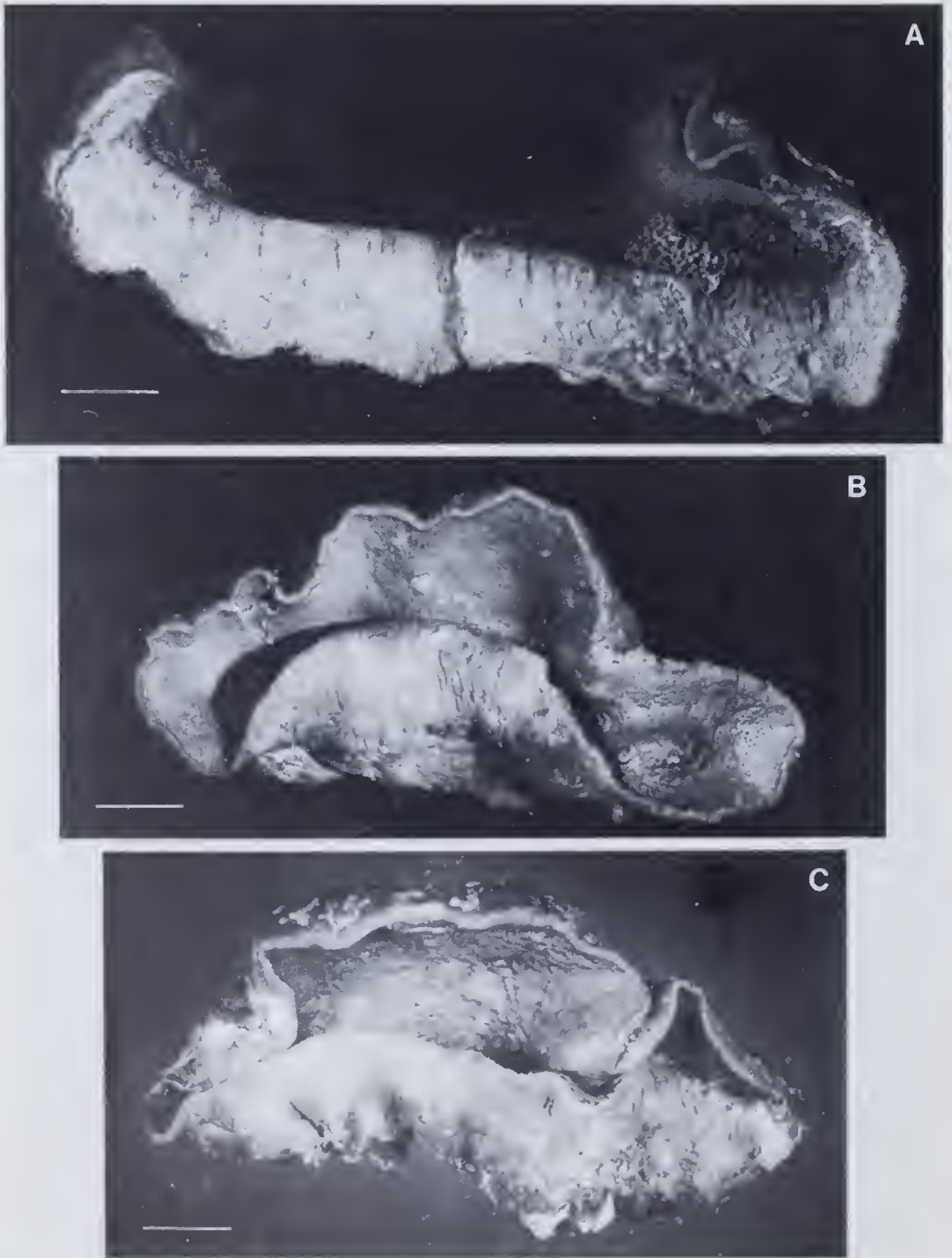


Figure 7 *Sinularia platysma* sp. nov.; A, holotype; B, paratype WAM 230-86; C, paratype NTM C-1193. Scale line 2 cm.

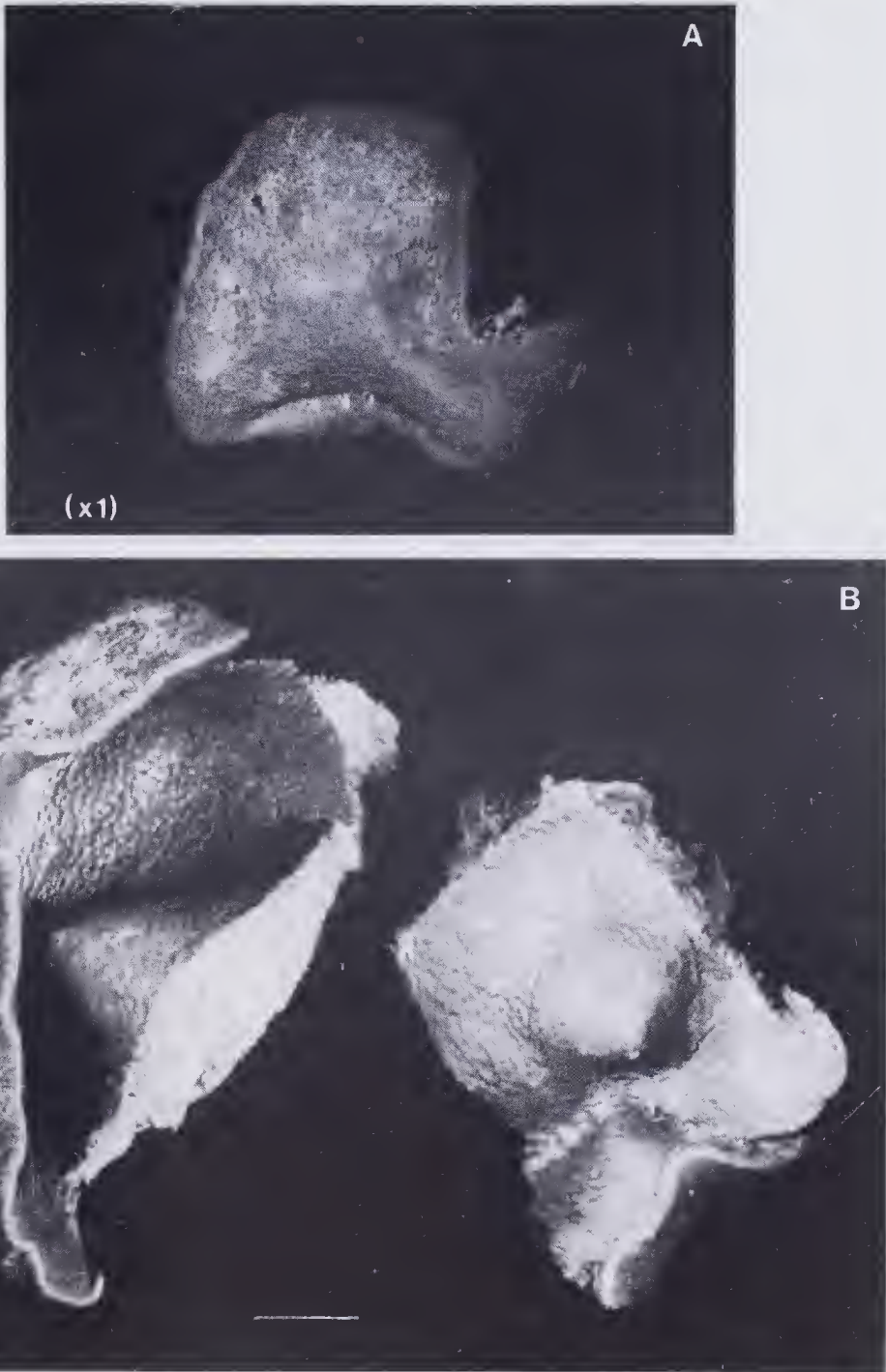


Figure 8 *Sinularia platysma* sp. nov.; A, paratype WAM 231-86, natural size; B, paratype NTM C-1190. Scale line 2 cm.

dish-like, but the rim is uneven and folded and lobes tend to intrude onto the central space (see Verseveldt 1980, pl. 13, fig. 3). *S. acetabulata* Verseveldt and Tursch, 1979, has a cup-shaped capitulum, the rim of which is deeply divided into lobes and lobules. *S. discrepans* Tixier-Durivault, 1970a, bears some resemblance to the latter species as does *S. barcaformis* Verseveldt and Benayahu, 1983. In *S. barcaformis* the lobed rim is not as strongly divided as in *S. acetabularia*. All of the afore-mentioned species have sclerites which are quite unlike those of *S. platysma*.

In 1977 Verseveldt described *Alcyonium complanatum*, an unusually shaped colony with a concave capitulum, from Rottneest Island. One of us (Alderslade) has personally collected specimens of this species from the type locality of *S. platysma*. It is indeed curious that an unusual colonial form should occur in two different alcyonarians from the same locality. Specimens of *A. complanatum* as large as colony WAM 231-86 have been compared to *S. platysma* and the two taxa found to be quite distinct. *A. complanatum* colonies are relatively soft and compressible due to the paucity of spindle-shaped sclerites in the canal walls. There are no other sclerite forms, such as clubs in the surface layers of the colonies, the interior spindles being visible through the translucent epidermis, and the polyps are quite unarmed.

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